

**Dr. Duke's Phytochemical and Ethnobotanical Database**

**Chemicals Found in *Armoracia rusticana***

| Activity Count | Chemical                  | Plant Part | Low PPM | High PPM | StdDev                | Reference Citation   |
|----------------|---------------------------|------------|---------|----------|-----------------------|--|
| 1              | 3-BUTENYL-ISOTHIOCYANATE  | Root       | --      | --       |                       | Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp. |
| 1              | 4-PENTENYL-ISOTHIOCYANATE | Root       | --      | --       |                       | Wealth of India.   |
| 32             | AESCULETIN                | Plant      | --      | --       |                       | Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp. |
| 16             | ALLYL-ISOTHIOCYANATE      | Root       | 400     | 2592     |                       |  |
| 7              | ALLYL-SULFIDE             | Root       | --      | --       |                       | Wealth of India.   |
| 5              | ALUMINUM                  | Root       | 4       | 30       | -0.2963835040806538   | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 1              | AMYLASE                   | Root       | --      | --       |                       | List, P.H. and Horhammer, L., <i>Hager's Handbuch der Pharmazeutischen Praxis</i> , Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                                   |
| 14             | ARGININE                  | Root       | --      | --       |                       | List, P.H. and Horhammer, L., <i>Hager's Handbuch der Pharmazeutischen Praxis</i> , Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                                   |
| 2              | ARSENIC                   | Root       | 0.01    | 0.04     | -0.20577574015712302  | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 112            | ASCORBIC-ACID             | Leaf       | 2440    | 4560     | -0.020810203280628586 |  |
| 112            | ASCORBIC-ACID             | Plant      | 1220    | 18200    | 3.6789306859570874    |  |
| 112            | ASCORBIC-ACID             | Root       | 1800    | 10000    | 5.070471286124204     |  |

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|----------------|----------------------|------------|---------|----------|----------------------|--|
| 2              | ASPARAGINE           | Root       | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                                   |
| 53             | BETA-CAROTENE        | Root       | 27      | 150      | 0.5227136521125912   |  |
| 47             | BETA-SITOSTEROL      | Root       | --      | 710      | -0.25867676228885333 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)                                 |
| 4              | BORON                | Root       | 6       | 27       | 0.10907004695750487  | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 3              | CADMIUM              | Root       | 0.08    | 0.5      | -0.36034786075591185 | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 102            | CAFFEIC-ACID         | Plant      | --      | --       |                      | Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp. |
| 28             | CALCIUM              | Root       | 1800    | 10000    | 0.28443978784453666  |  |
| 2              | CAMPESTEROL          | Root       | --      | 200      | 1.2834996430471919   | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)                                 |
| 7              | CHLORINE             | Root       | 185     | 745      | 0.3641382774206427   | Wealth of India.   |
| 24             | CHROMIUM             | Root       | 0.6     | 3.5      | 0.13765284526356406  |  |
| 2              | COBALT               | Root       | --      | --       |                      |  |
| 12             | COPPER               | Root       | 1       | 9        | -0.30116857246091955 |  |
| 1              | ETHYL-ISOTHIOCYANATE | Root       | --      | --       |                      | Wealth of India.   |
| 15             | FIBER                | Root       | 14000   | 94000    | 0.130764747590634    | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |

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|----------------|--------------------|------------|---------|----------|----------------------|--|
| 8              | FRUCTOSE           | Root       | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                             |
| 8              | GENTISIC-ACID      | Root       | 15      | 15       |                      |  |
| 1              | GLUCOBRASSICANAPIN | Plant      | --      | --       |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1              | GLUCOIBERIN        | Plant      | --      | --       |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 1              | GLUCONAPIN         | Plant      | --      | --       |                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp. |
| 7              | GLUCOSE            | Root       | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                             |
| 6              | IRON               | Root       | 1.4     | 8        | -0.4300308811451584  |  |
| 75             | KAEMPFEROL         | Leaf       | --      | --       |                      | Abstract (See species file)  |
| 75             | KAEMPFEROL         | Root       | --      | 6        |                      |  |
| 60             | LIMONENE           | Plant      | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.                             |
| 65             | MAGNESIUM          | Root       | 1624    | 9020     | 3.436573672307347    |  |
| 14             | MANGANESE          | Root       | 1.5     | 8.2      | -0.44795773578567305 |  |
| 1              | MERCURY            | Root       | --      | 0.001    | -0.508569995990937   | ACTA AGRIC SCAND SUPPL 22: 1980  |

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| 2              | MOLYBDENUM                  | Root       | --      | 0.1      | -0.46089530570591497 | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 39             | NIACIN                      | Root       | 16      | 90       | 1.1523682511680913   |  |
| 3              | NICKEL                      | Root       | 0.2     | 1.2      | -0.495065007546234   | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 13             | P-HYDROXY-BENZOIC-ACID      | Root       | 14      | 14       |                      |  |
| 24             | PECTIN                      | Root       | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.   |
| 1              | PHENYLPROPYL-ISOTHIOCYANATE | Root       | --      | --       |                      | Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.   |
| 4              | PHOSPHORUS                  | Root       | 1278    | 7100     | 0.6294359439199063   |  |
| 2              | PHYTOSTEROLS                | Root       | --      | 910      | 0.014453690337214282 | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 14             | POTASSIUM                   | Root       | 5400    | 30000    | 1.0413262881316638   |  |
| 176            | QUERCETIN                   | Leaf       | --      | --       |                      | Abstract (See species file)  |
| 3              | RAPHANIN                    | Plant      | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.   |
| 15             | RIBOFLAVIN                  | Root       | 4       | 20       | 3.485161664486578    |  |
| 4              | RUTOSIDE                    | Leaf       | --      | --       |                      |  |
| 7              | SALICYLATES                 | Root       | 1       | 2        | -0.6930213679572391  |  |
| 60             | SELENIUM                    | Root       | --      | --       |                      |  |
| 4              | SILICON                     | Root       | 0.4     | 2        | -0.33371737669722845 |  |

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|----------------|---------------|------------|---------|----------|----------------------|--|
| 9              | SINAPIC-ACID  | Plant      | --      | --       |                      |  |
| 7              | SINIGRIN      | Root       | --      | 3000     |                      |  |
| 1              | SODIUM        | Root       | 216     | 1200     | 0.045965512774069996 |  |
| 5              | STARCH        | Root       | 39600   | 220000   | -0.40048460622279153 |  |
| 12             | STIGMASTEROL  | Root       | --      | --       | -0.8132428087578462  | Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.) |
| 14             | SULFUR        | Root       | 1800    | 10000    | 2.1484129636070275   | ACTA AGRIC SCAND SUPPL 22: 1980  |
| 35             | TANNIN        | Plant      | --      | --       |                      | List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.   |
| 31             | THIAMIN       | Root       | --      | 3        | -0.32687193108858614 | CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses  |
| 2              | TRIFOLIN      | Shoot      | --      | --       |                      |  |
| 24             | VANILLIC-ACID | Root       | 45      | 45       | 0.4683014551040585   |  |
| 77             | ZINC          | Root       | 0.5     | 2.9      | -0.9319328403212439  |  |